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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/529,192	10/11/2005	James Martin	2088.00700014.0195 PCT US	4407
7590 WesternGeco 10001 Richmond Avenue Houston, TX 77042			EXAMINER LOBO, IAN J	
			ART UNIT 3662	PAPER NUMBER
			MAIL DATE 04/02/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/529,192	<b>Applicant(s)</b> MARTIN ET AL.	
	<b>Examiner</b> Ian J. Lobo	<b>Art Unit</b> 3662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-21 and 23-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-21 and 23-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. Claims 10-13, 25 and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 10-13, 25 and 26 are indefinite since they depend upon a cancelled claim.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 4, 5, 7-9, 14-17, 20, 21, 23, 24 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Williams et al ('575).

Per independent claims 1 and 17, the patent to Williams et al discloses a method and apparatus for determining a propagation time delay where at least one source (236A-E) generates a plurality of separable (col. 3, lines 64-68) modulated Doppler invariant signals (col. 8, lines 24+), a receiver (236A-E) located along a seismic cable receives the at least one modulated Doppler invariant signal from the source and a signal processing unit (see Fig. 3). The time delay between the received signal and generated signal are then determined using the signal processing unit.

Dependent claims 4-16 and 20-27 are further anticipated by the structure and method disclosed by Williams et al.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2, 3, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williams et al ('575) when taken in view of the IEEE articles to Altes or Ashley et al.

Claims 2, 3, 18 and 19 differ from the system and method disclosed by the aforementioned Williams et al patent by claiming that the modulated Doppler invariant signal is a modulated linear period modulated signal.

The IEEE article to Altes discloses that for coherent, long duration sonar signal processing detection performance may be degraded unless the transmitted waveforms are acceleration tolerant. The IEEE article to Ashley et al discloses that wideband waveforms in highly reverberant sonar environments linear period modulated (LPM) signals provide added Doppler invariant characteristics especially with the advent of modern digital signal processing with matched filters.

Thus, in view of either Altes or Ashley et al, it would have been obvious to one of ordinary skill in the art to modify the highly reverberant sonar environment disclosed in

the Williams et al system or method by utilizing a modulated linear period modulated signal as the Doppler invariant signal.

### ***Response to Arguments***

6. Applicant's arguments filed December 20, 2007 have been fully considered but they are not persuasive.

Applicant first argues that the 35 USC 102 rejection fails to map any imitation and therefore fails to establish *prima facie* anticipation. This argument is not convincing since the above 102 rejection does map out the limitations, especially of the independent claims.

Applicant further argues that the 35 USC 103 rejection fails since the combinations do not teach all the limitations and the secondary references are outside the scope and content of the prior art. This is also not convincing. As noted in the rejection under 102, the Williams reference shows the generating of a plurality of separable, modulated Doppler invariant signals. Second, it is disclosed that the secondary references are directed to sonar. It is difficult to see how a sonar application is outside the scope and content of underwater pulse tracking (Williams et al). In fact the secondary references and Williams are directed to underwater acoustic pulse transmissions or sonar.

***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian J. Lobo whose telephone number is (571) 272-6974. The examiner can normally be reached on Monday - Friday, 6:30 - 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas H. Tarcza can be reached on (571) 272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ilan J. Lobo/  
Primary Examiner  
Art Unit 3662